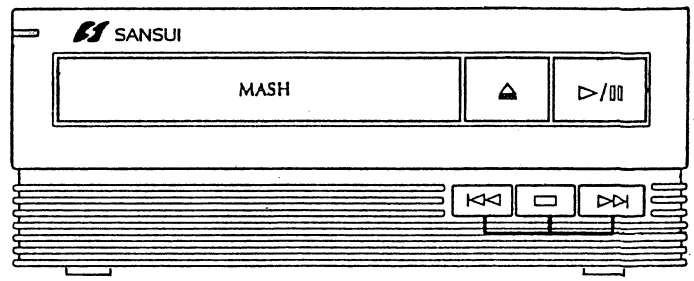
SANSUI

SERVICE MANUAL

MC-X7
MC-X7L

MINI COMPONENT SYSTEM
<COMPACT DISC PLAYER SECTION>



Organization of System Component

	Amplifier	Tuner	CD Player	Cassette Deck	Optional Speaker
SET NAME	A-X7	T-X7, T-X7L	CD-X7	D-X7	S-X7

Note: Set name is shown on the rear panel.

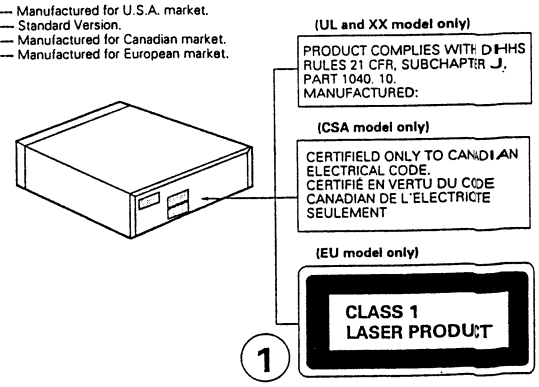
CAUTION
1. Parts identified by the ⚠ symbol on the schematic diagram and the parts list are critical for safety.
   Use only replacement parts that have critical characteristics recommended by the manufacturer.
2. Make leakage-current or resistance measurements to determine that exposed parts are acceptably insulated from the supply circuit before returning the appliance to the customer.

• Specifications

Format.....Compact disc, digital audio system
Pickup.....3-Beam, semiconductor laser
Decoding (D/A).....1-Bit / MASH
(MASH is trademark of NTT)
Frequency response.....4 Hz to 20 kHz, ±0.5 dB
Total harmonic distortion.....Less than 0.006% (1 kHz)
Signal-to-Noise ratio.....Better than 103 dB
Dynamic range.....Better than 99 dB
Wow & flutter.....Below measurable limit
Dimensions.....225 mm (8-7/8") W
84 mm (3-5/16") H
280 mm (11-1/16") D
Weight.....2.0 kg (4.41 lbs) net

* Design and specifications subject to changes without notice for improvements.

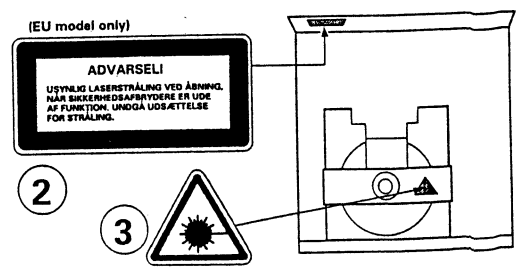
UL——— Manufactured for U.S.A. market.
XX——— Standard Version.
CSA——— Manufactured for Canadian market.
EU——— Manufactured for European market.


(UL and XX model only)
PRODUCT COMPLIES WITH DHHS RULES 21 CFR, SUBCHAPTER J, PART 1040. 10. MANUFACTURED:
(CSA model only)
CERTIFIED ONLY TO CANADIAN ELECTRICAL CODE.
CERTIFIÉ EN VERTU DU CODE CANADIAN DE L'ELECTRICITE SEULEMENT
(EU model only)
CLASS 1
LASER PRODUCT
1

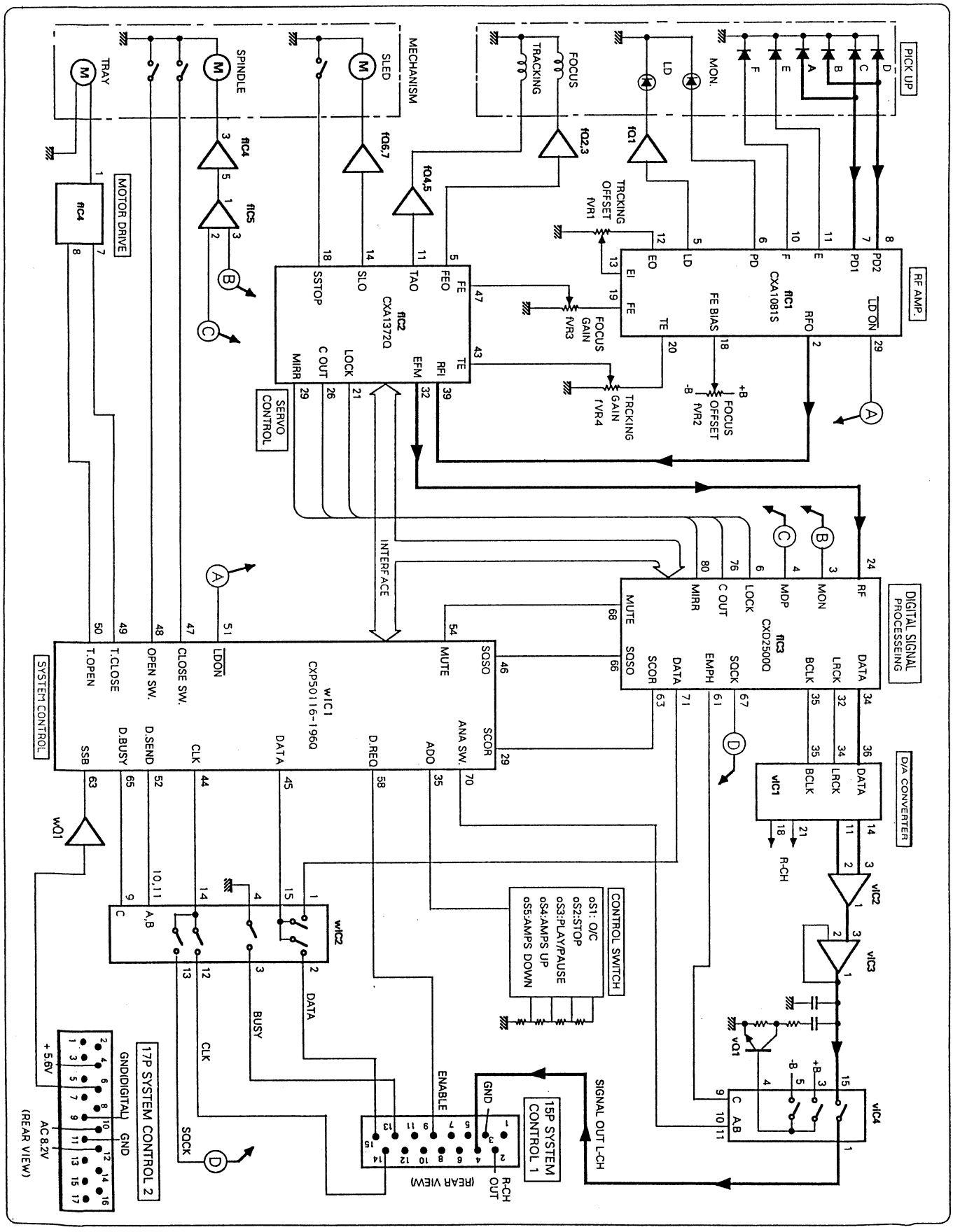
CAUTION: USE OF CONTROLS FOR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE.

* The following label has been affixed to the unit, listing the proper procedure for working with the laser beam.

1. THIS LABEL IS ATTACHED TO THE PLACE AS ILLUSTRATED TO INFORM THAT THE APPARATUS CONTAINS A LASER COMPONENT.
2. THIS LABEL IS ATTACHED TO THE INSIDE OF THE TOP COVER AS ILLUSTRATED, SO THAT ANY FURTHER PROCEDURE WILL BRINGING THE USER INTO EXPOSURE WITH THE LASER BEAM.
3. THE WARNING LABEL INFORMING OF RADIATION IS PLACED INSIDE THE UNIT. AS SHOWN IN THE ILLUSTRATION, TO WARN AGAINST FURTHER MEASURES ON THE UNIT. THE EQUIPMENT CONTAINS A LASER COMPONENT RADIATING LASER RAYS EXCEEDING THE LIMIT OF LASER PRODUCTS OF CLASS 1.


(EU model only)
ADVARSEL!
USYNLIG LASERSTRÅLING VED ÅBNING, NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION. UNDGÅ UDSÆTTELSE FOR STRÅLING.
2
3

1. BLOCK DIAGRAM



2. REPLACEMENT OF MAIN PARTS

<See Exploded Diagram on page 3 and 4>

A. How to Remove the Bonnet

Remove the bonnet by lifting it straight up.

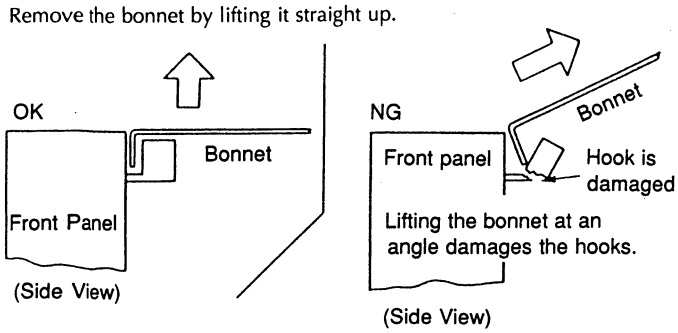


Fig. 2-1

1. Remove the 6 bonnet mounting screws.
2. Lift the bonnet straight up.
   Note that forcing the bonnet up at an angle or raising it toward the rear may result in damage to the front panel hooks

B. Tray Panel

1) Turn the OPEN/CLOSE switch ON and pull the tray out.

Note: When it dose not OPEN or CLOSE, rotate the large white gear (see Part 21, Exploded View, Page 3) on the lower part in the front of the CD mechanism clockwise by a stick or something soft to move the tray slightly out of the FRONT PANEL, and pull it out by hand.

2) Pull the center of the lower part of the tray panel slightly out to remove the hook and remove the tray panel right upwardly. (See Fig.2-2.)

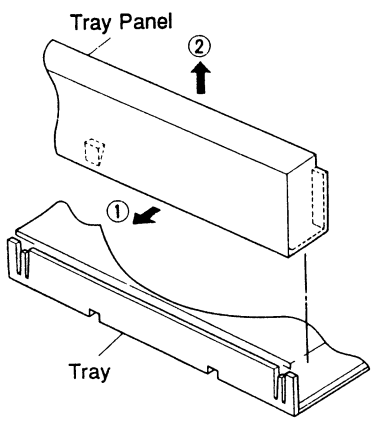


Fig. 2-2

C. Front Panel

1) Remove the bonnet.
2) Remove the two screws at the lower side of the FRONT PANEL.
3) Remove the hooks in both sides of the FRONT PANEL.
4) Remove the F-6558 and F-6559 boards from the FRONT PANEL.
5) Remove the playknob, stopknob, etc. from the FRONT PANEL.

D. Mechanism Ass'y

1) Remove the bonnet.
2) Remove the four connecters (JP 1 through 4). (See Fig.6-2 on page 6.)

Note: The connection code between the mechanism and the main board is not included in the mechanism Ass'y, so be careful not to lose it.

3) Remove the three screws that fix the mechanism Ass'y. (See Fig.2-3.)
4) Remove the earth washer setting screw.
5) Remove the tray panel.

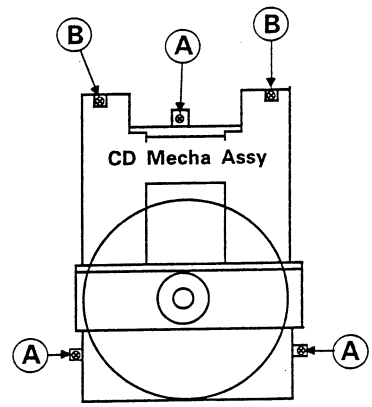


Fig. 2-3

Note: Add solder to the arrow part of Fig. 2-4 before removing the two lead connectors of the pick up ass'y. This is to guard the pick up ass'y against static electricity breakdown.

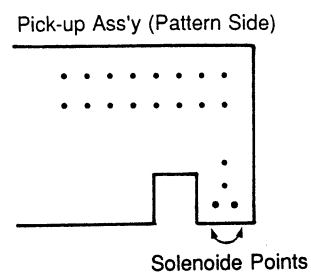
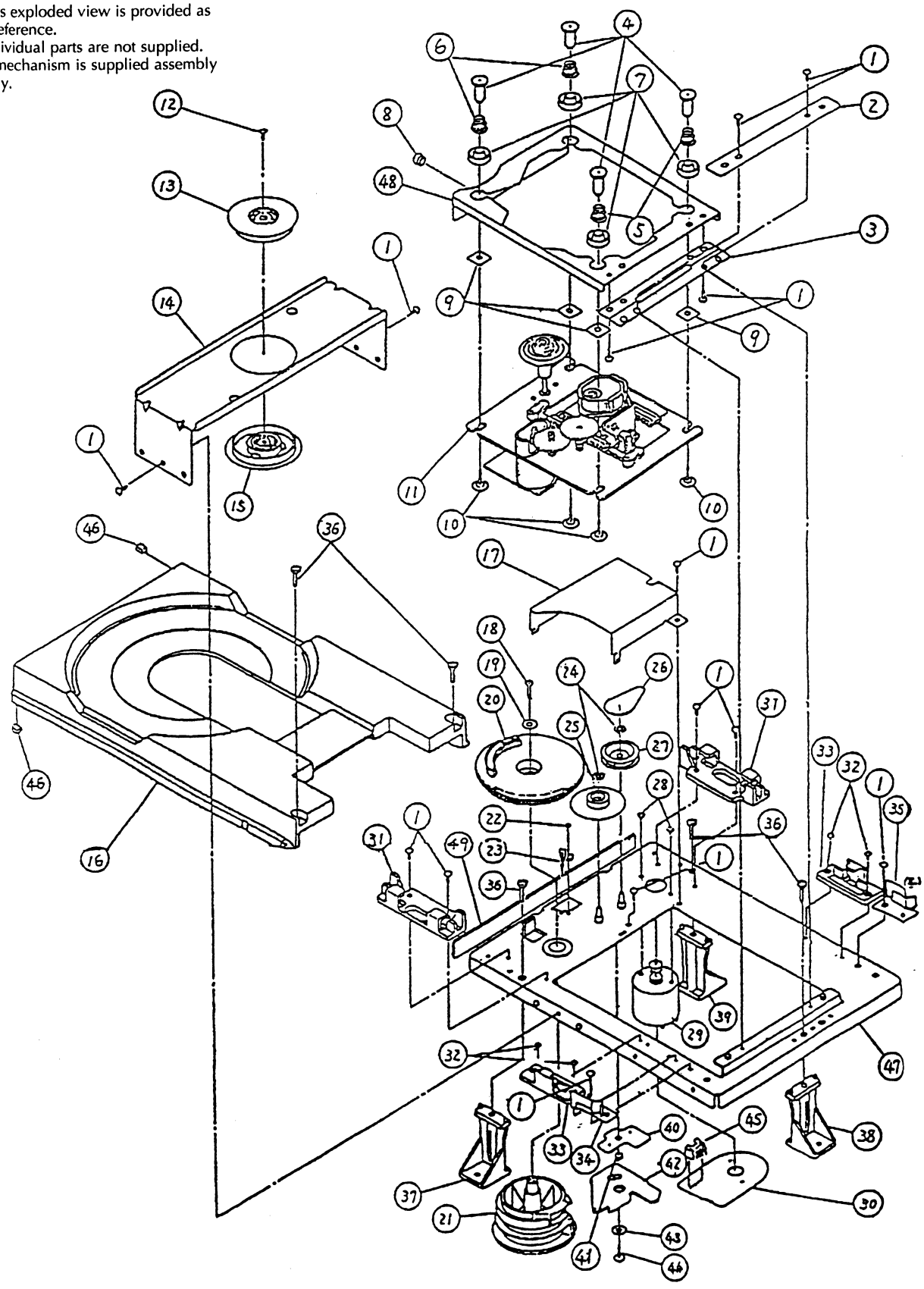


Fig. 2-4

3. EXPLODED VIEW OF CD MECHANISM AND PARTS LIST

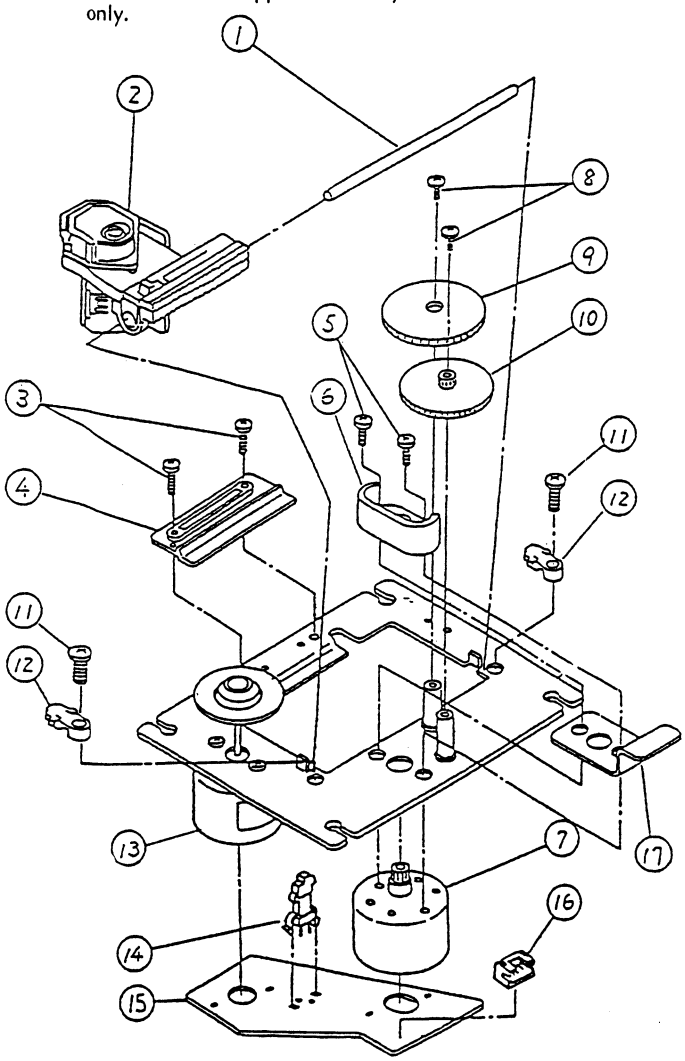
3-1. CD Mechanism

Note: This exploded view is provided as a reference.
Individual parts are not supplied.
A mechanism is supplied assembly only.



3-2. Drive Unit

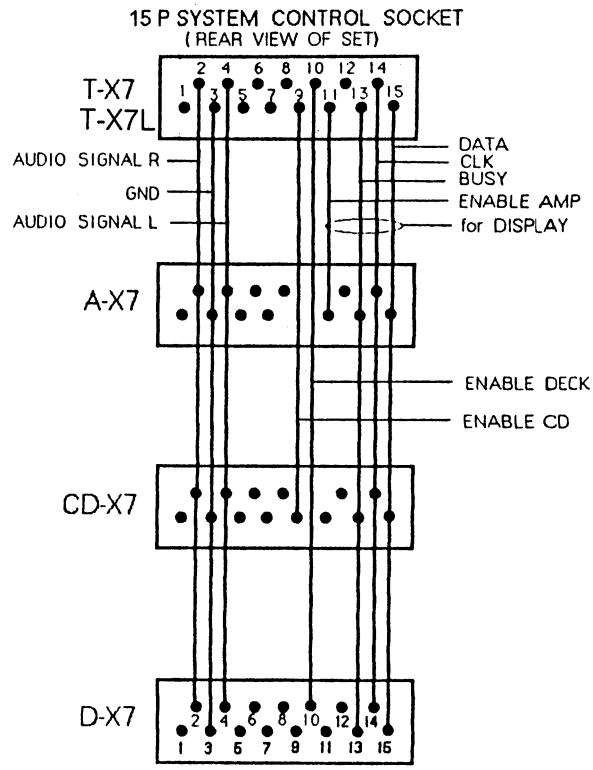
Note: This exploded view is provided as a reference.
Individual parts are not supplied.
A mechanism is supplied assembly only.

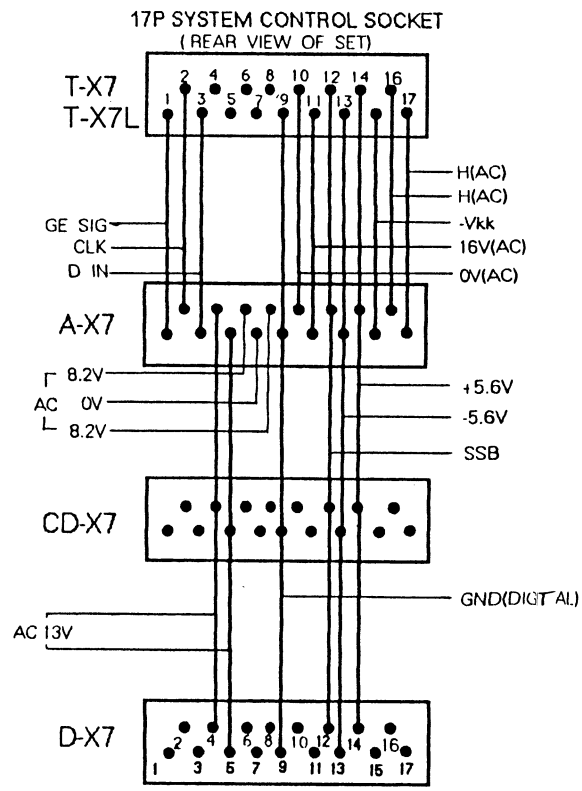


<Mechanism Ass'y>

Parts No.		Stock No.	Description
*		83273800	CD Mechanism Ass'y (KSL-210AFM)
*	or	83274800	CD Mechanism Ass'y (KSL-150A CM3)
*	or	83274900	CD Mechanism Ass'y (KSL-150A AFM)

4. PIN LOCATION OF SYSTEM CONTROL SOCKET





5. PARTS LIST OF BOARD

Notice for Parts

1. Some printed circuit board are not supplied assembled. To separate these in this Service Manual, the stock numbers are not indicated for these boards. However, stock numbers for individual parts are indicated.
2. Since some capacitors and resistors are omitted from parts lists in this Service Manual, refer to the Common Parts List for capacitors and resistors, which was issued on June 1987.
3. Abbreviations in this Parts List are as follows.

•Abbreviations List

S.V.R. : Semi Variable Resistor C.C. : Ceramic Capacitor
SW. : Switch

5-1. F-6557 Main Board

<Stock No. 01251701>

Parts No.	Stock No.	Description
•Transistor		
fQ1	46359701	2SA952
fQ2	46359801	2SC2001
fQ3	46359701	2SA952
fQ4	46359801	2SC2001
fQ5	46359701	2SA952
fQ6	46359801	2SC2001
fQ7	46359701	2SA952
•IC		
fIC1	48839900	CXA1081S
fIC2	49552900	CXA1372Q
fIC3	49552700	CXD2500Q
fIC4	49396100	TCA0372DP1
or	49615700	L272M
fIC5	03607700	NJM4558D
or	49541300	M5218AP
•Diode		
fD1	46464100	1SS133
fC14	48748400	0.1µF 50V C.C.
fC17	48748400	0.1µF 50V C.C.
fC35	48748400	0.1µF 50V C.C.
fC39	48748400	0.1µF 50V C.C.
fC40	48748400	0.1µF 50V C.C.
fC41	48748400	0.1µF 50V C.C.
fC46	48748400	0.1µF 50V C.C.
fC50	48748400	0.1µF 50V C.C.
fC51	48748400	0.1µF 50V C.C.
fL1	48289400	10µH Inductor
fVR1	46634500	22kΩ S.V.R., Tracking Offset
fVR2	46634300	10kΩ S.V.R., Focus Offset
fVR3	46634500	22kΩ S.V.R., Focus Gain
fVR4	46634500	22kΩ S.V.R., Tracking Gain
•Transistor		
⚠ mQ1	46359801	2SC2001
⚠ mQ2	46359701	2SA952
mQ3	46367101	2SC2603
•IC		
⚠ mIC1	49440500	NJM78M06FA
⚠ mIC2	46544000	NJM79L05A
⚠ or	49391300	µPC79L05J

<F-6557>

Parts No.	Stock No.	Description
•Diode		
mD1	03117700	10E-2
mD2	03117700	10E-2
mD3	03117700	10E-2
mD4	03117700	10E-2
mD5	46464100	1SS133
mD6	46464100	1SS133
mD7	46464100	1SS133
mD8	46464100	1SS133
•Zener Diode		
mDZ1	48552800	MTZ6.2C
mDZ2	48552800	MTZ6.2C
oJ1	49352400	15P FG System Control -1 Socket
oJ2	49587300	17P FG System Control -2 Socket
•Transistor		
vQ1	46367101	2SC2603
•IC		
vIC1	49471500	MN6471DM
or	49543400	MN6474M
vIC2	03607700	NJM4558D
or	49541300	M5218AP
vIC3	03607700	NJM4558D
or	49541300	M5218AP
vIC4	46545800	TC4053BP
vXO1	49357400	Quartz Element
vC1	48748400	0.1µF 50V C.C.
vC3	48748400	0.1µF 50V C.C.
vC7	48748400	0.1µF 50V C.C.
vL1	48289000	4.7µH Inductor
•Transistor		
wQ1	48367101	2SC2603
•IC		
wIC1	49645300	CXP50116-304Q
wIC2	46545800	TC4053BP
wXO1	49488500	Quartz Element
wC1	48748400	0.1µF 50V C.C.

5-2. F-6558 Control Switch Board

Parts No.	Stock No.	Description
oS1	49326300	Push SW., OPEN/CLOSE
oS2	49326300	Push SW., STOP
oS3	49326300	Push SW., PLAY/PAUSE
oS4	49326000	Push SW., AMPS UP
oS5	49326300	Push SW., AMPS DOWN

5-3. F-6559 Power Indicator Board

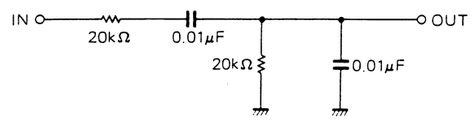
Parts No.	Stock No.	Description
•LED		
mLD1	48841400	SEL3213C

MC-X7/X7L
<Compact Disc Player Section>

6. ADJUSTMENT

Note: 1. This adjustment require the amplifier models MC-X7 or MC-X7L.
2. Connections are shown in Fig. 6-1.
3. Turn the power OFF before removing the bonnet.
4. See Figure 6-2 for the locations where adjustments are to be carried out.
5. Use the EIAJ test disk CD-1.
6. The following band pass filter (BPF) is used for adjustments.
7. In executing steps 2 to 5, connect the probe after playing the disc.

Band Pass Filter (BPF)



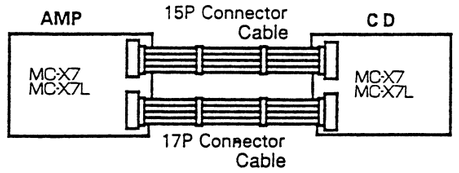
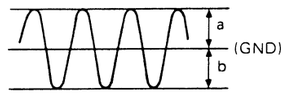
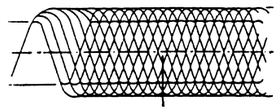
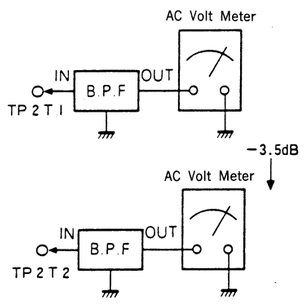
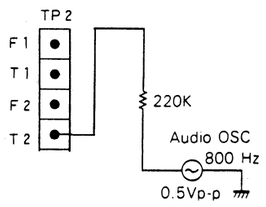
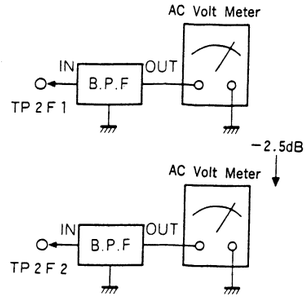
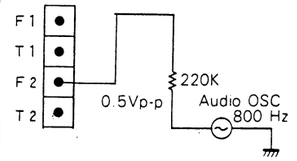
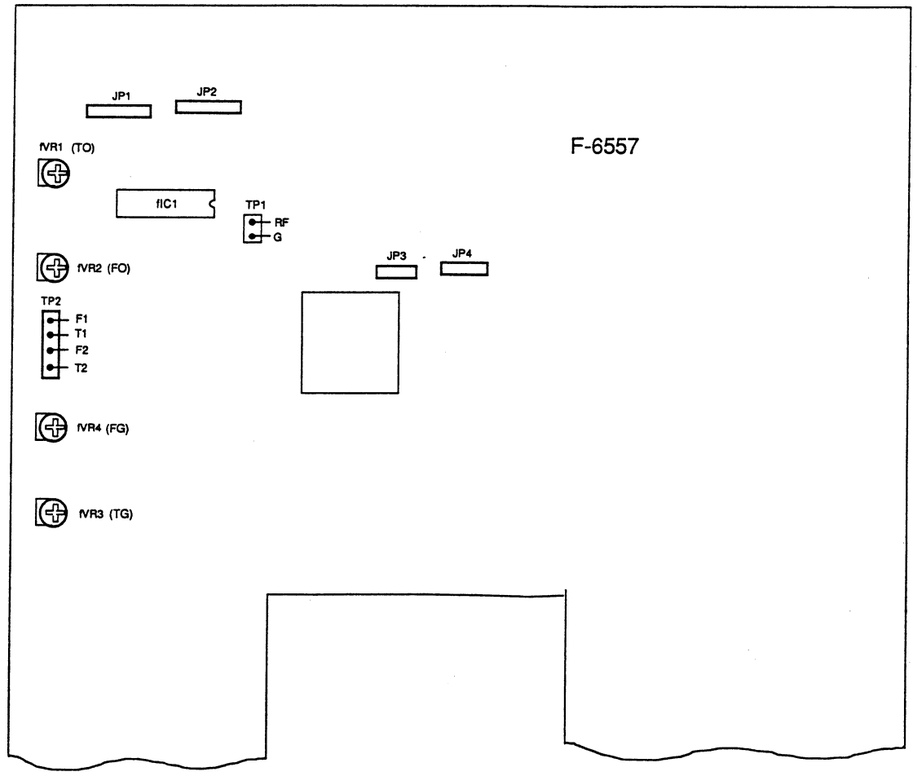


Fig. 6-1

Step	Item	Measuring Location	Adjustment Location	Adjustment	Conditions and Notes
1	Tracking offset adjustment	Connect an oscilloscope to T1 of TP2.	fVR1	 Set the oscilloscope to the DC range. Adjust so that a and b have the same level.	• Ground T2 of TP2. • Playback the 8th track of CD-1.
2	Focus offset	Connect an oscilloscope to the RF of TP1.	fVR2	Set to maximum.  Carry out adjustments to achieve a clean overall pattern and so that the indicated portion is wide and symmetrical.	• Playback the 8th track of CD-1.
3	Tracking gain adjustment	Connect AC voltmeter to T1 of TP2 via the BPF. Connect AC voltmeter to T2 of TP2 via the BPF.	fVR3	Using the indicated voltage at T1 of TP2 as a reference, adjust the voltage at T2 to –3.5dB. 	 • Playback the 4th track (no signal) of CD-1. • Apply an 800Hz signal of 0.5Vp-p from SG to T2 of TP2 via a resistance of 220kΩ. Adjust fVR4 to the position shown in the figure. If you do not have a BPF or if –3.5dB cannot be achieved. fVR3
4	Focus gain adjustment	Connect AC voltmeter to F1 of TP2 via the BPF. Connect AC voltmeter to F2 of TP2 via the BPF.	fVR3	 Using the indicated voltage at F1 of TP2 as a reference, adjust the voltage at F2 to –2.5dB.	 • Playback the 4th track (no signal) of CD-1. • Apply an 800Hz signal of 0.5Vp-p from SG to F2 of TP2 via a resistance of 220kΩ. fVR4 Adjust fVR4 to position shown in the Figure if you do not have a BPF or if –2.5dB cannot be achieved.

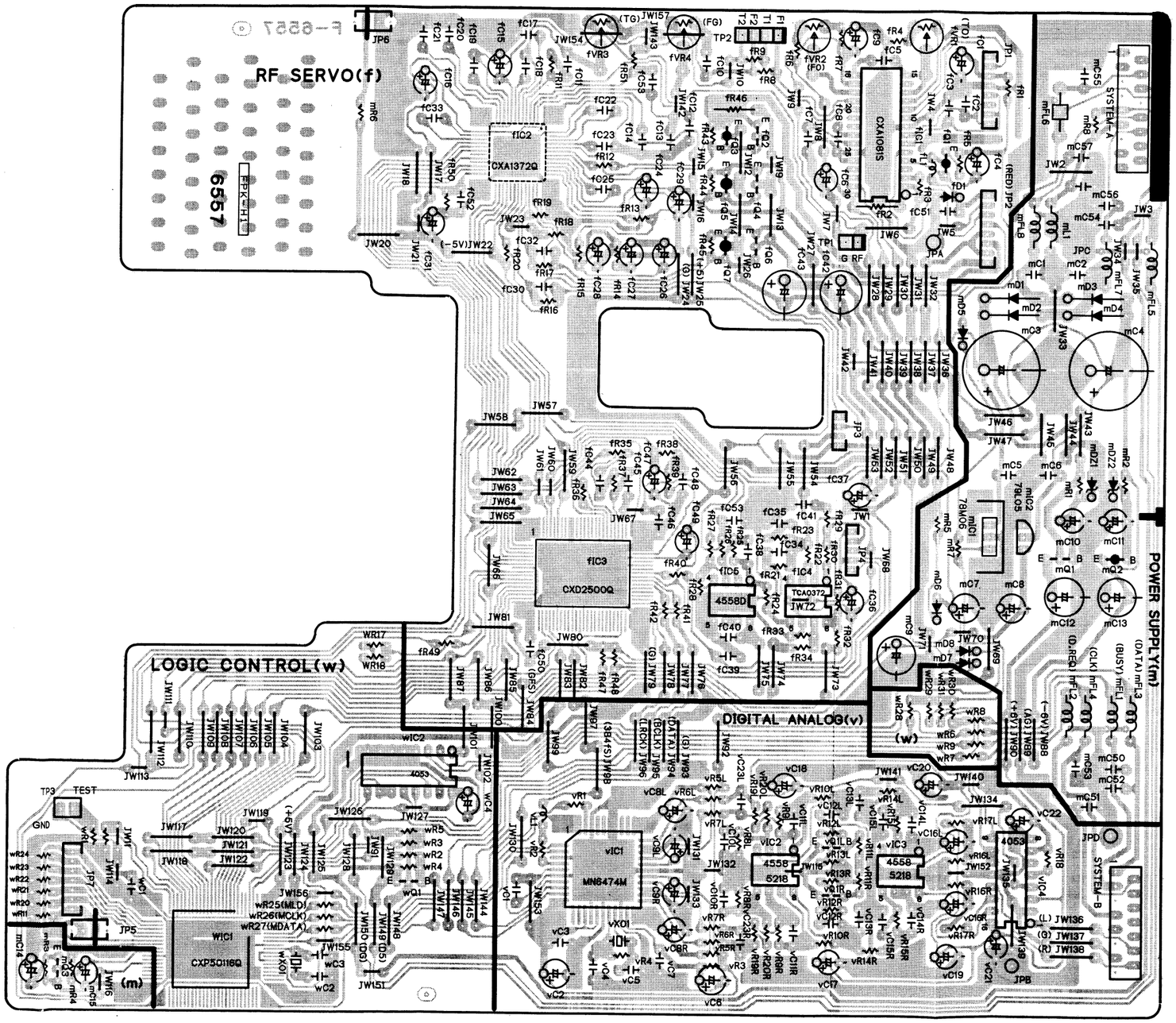
• **Fig. 6-2 Adjustment location**



7. PARTS LOCATION ON BOARD

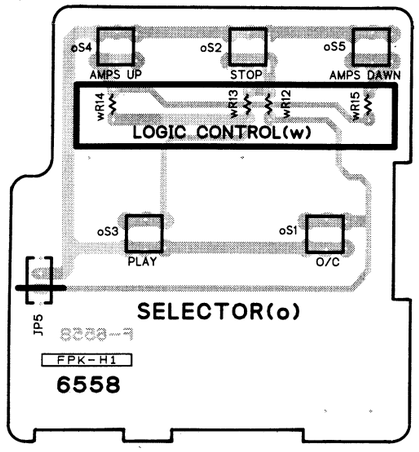
7-1. F-6557 Main Board

Component Side



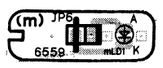
7-2. F-6558 Control Switch Board

Component Side

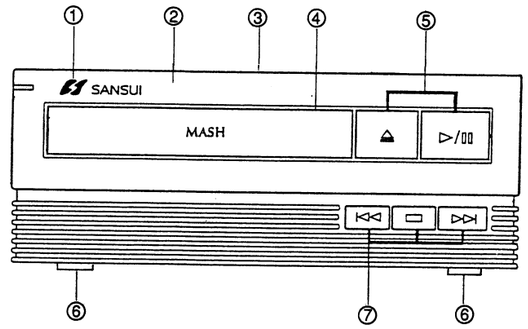


7-3. F-6559 Power Indicator Board

Component Side



8. OTHER PARTS

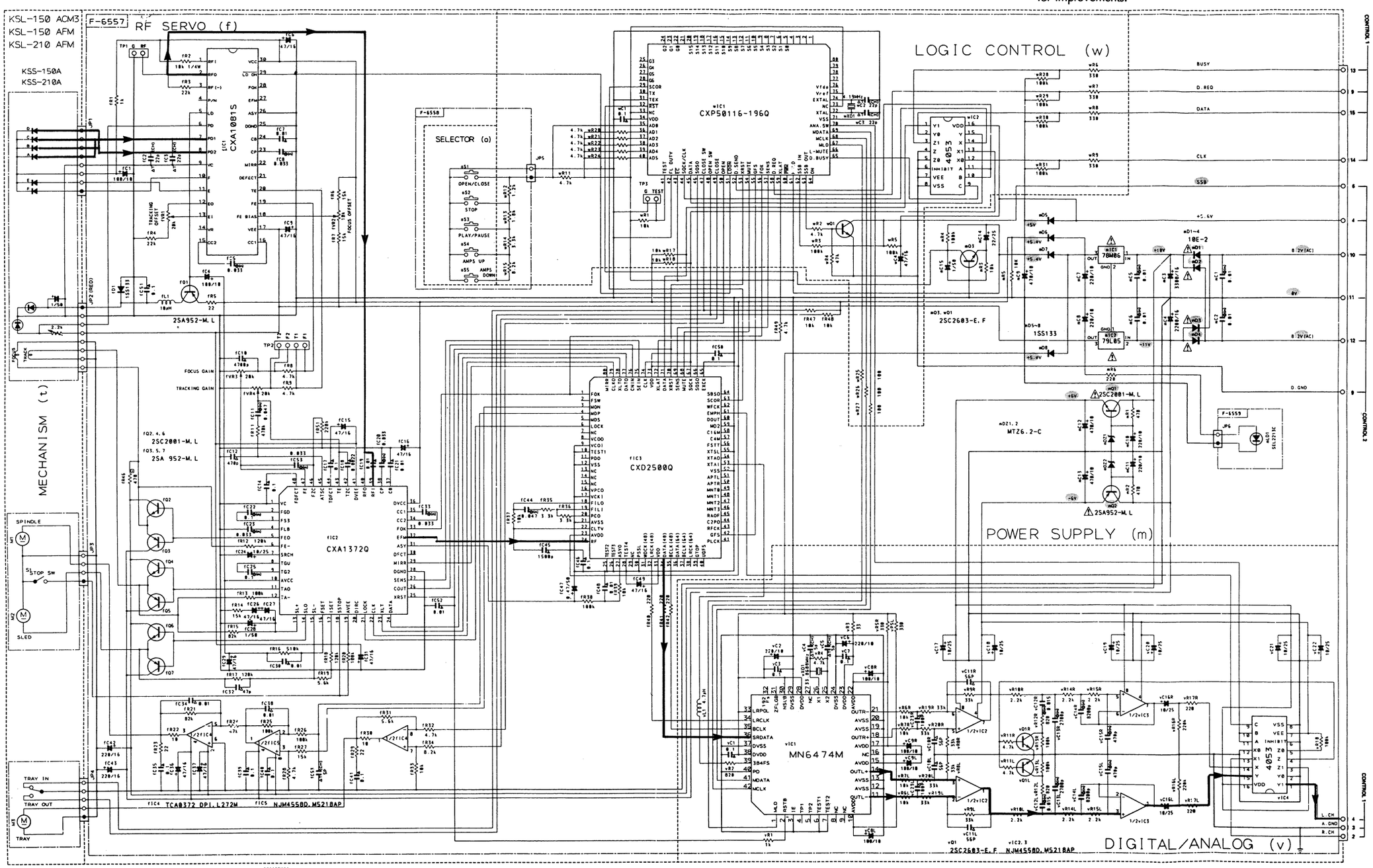


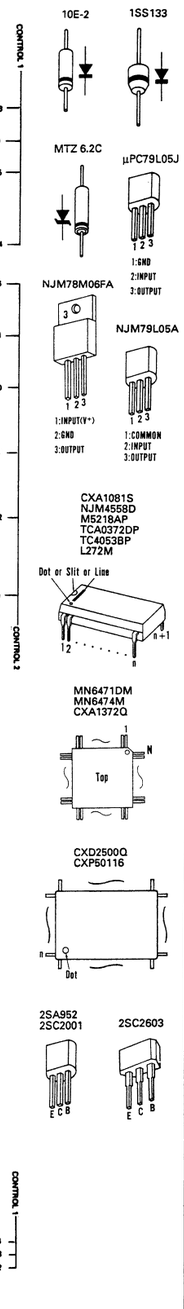
Parts List

Parts No.	Stock No.	Description
1	05015310	Logo type Badge
2	05016600	Front Panel Ass'y
3	05011900	Bonnet
4	05011410	Tray Panel
5	05011310	Knob, PLAY/PAUSE, EJECT
6	27902500	Sheet for leg
7	05014810	Knob, STOP, ⏮, ⏭

9. SCHEMATIC DIAGRAM

* Design and specifications subject to changes without noitice for improvements.





SYMBOL OF FUNCTION
(f) RF SERVO
(m) POWER SUPPLY
(o) SELECTOR
(t) MECHANISM
(v) DIGITAL/ANALOG
(w) LOGIC CONTROL

SYMBOL
△ Ceramic Capacitor
△t Ceramic(Temperature Compensation)
Mylar
▲ Barrier Layer Capacitor
⊟ Non-Inflammable Resistor

⚠ is Safety Parts.
Use only replacement parts recommended by the manufacturer.

RESISTORS
Are in ohms, 1/6Watts, ±5% Tolerance
Unless Otherwise Noted k:kΩ, M:MΩ
TOLERANCE G:±2% F:±1%

CAPACITORS
Are in pF, Unless Otherwise Noted P:pF

ELECTROLYTIC CAPACITORS
Capacitance(uF)/Volts(V)

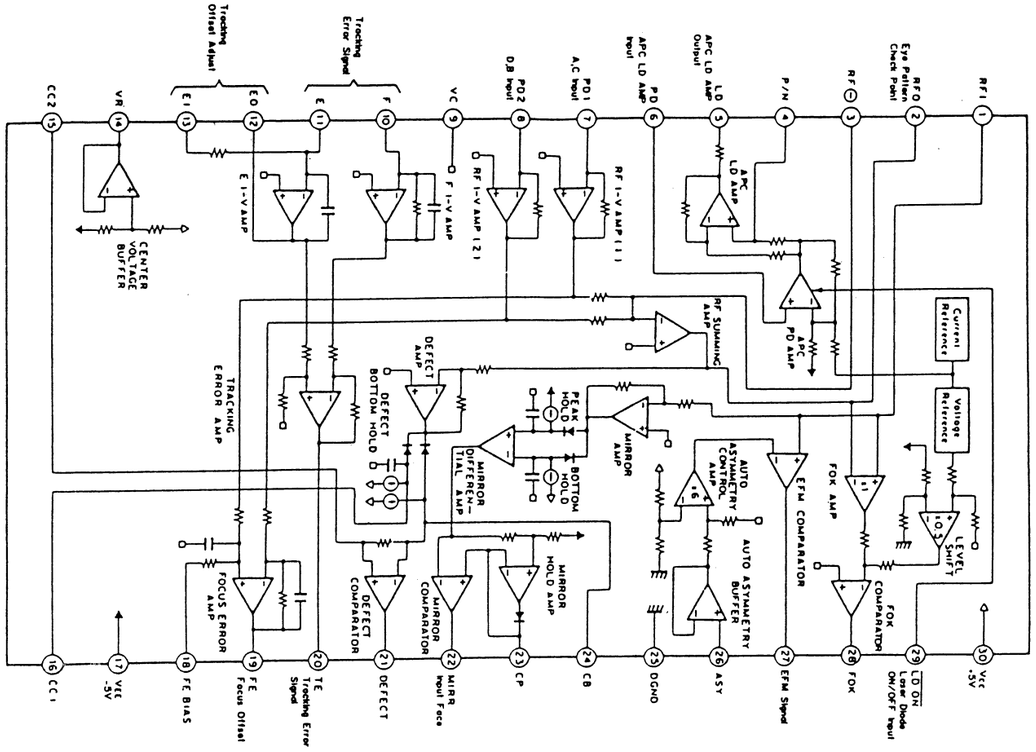
Each D.C Voltage shows the nominal value in volts at playing.

Signal Line

MC-X7/X7L
<Compact Disc Player Section>

10. INTERIOR BLOCK DIAGRAM & TERMINAL FUNCTION OF ICs

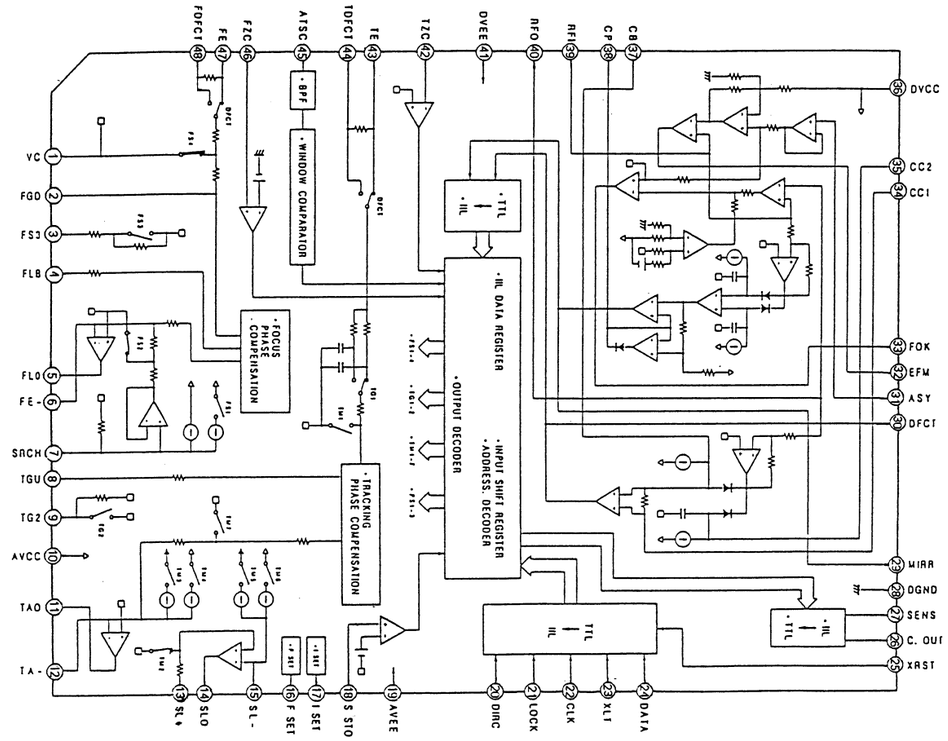
• CXA1081S (RF Amp.)



• Terminal Function <CXA1081S>

Pin No.	Pin Name	I/O	Description
1	RFI	I	RF summing amplifier input.
2	RFO	O	RF summing amplifier input.
3	RF ⊖	I	RF Summing amplifier feedback signal input.
4	P/N	I	Terminal for switching P-sub/N-sub of LD (laser diode).
5	LD	O	APC LD amplifier output.
6	PD	I	APC PD amplifier input.
7	PD1	I	RF I-V amplifier (1) inverting input. This terminal is connected to the pin diode (A + C).
8	PD2	I	RF I-V amplifier (2) inverting input. This terminal is connected to the pin diode (B + D).
9	VC	–	Ground
10	F	I	F I-V amplifier inverting input. This terminal is connected to the pin diode (F).
11	E	I	E I-V amplifier inverting input. This terminal is connected to the pin diode (E).
12	EO	O	E I-V amplifier output.
13	EI	I	E I-V amplifier feedback input.
14	VR	O	(Vcc + Vee)/2 voltage output.
15	CC2	I	Defect amplifier bottom hold input. This terminal is connected Pin 16 with a coupling capacitor.
16	CC1	O	Defect amplifier bottom hold output.
17	Vee	–	Negative supply voltage: −5V.
18	FEBIAS	I	Bias terminal for the focus error amplifier non-inverting.
19	FE	O	Focus error amplifier output.
20	TE	O	Tracking error amplifier output.
21	DEFECT	O	Defect comparator output.
22	MIRR	O	Mirror comparator output.
23	CP	I	Mirror comparator non-inverting input. This terminal is connected a mirror hold capacitor.
24	CB	I	This terminal is connected a defect bottom hold capacitor.
25	DGND	–	Ground.
26	ASY	I	Auto asymmetry buffer control signal input.
27	EFM	O	EFM comparator output.
28	FOK	O	FOK comparator output.
29	LD ON	I	Laser diode ON/OFF switching input.
30	Vcc	–	Positive supply voltage: +5V.

• CXA1372Q (Focus/Tracking Servo)



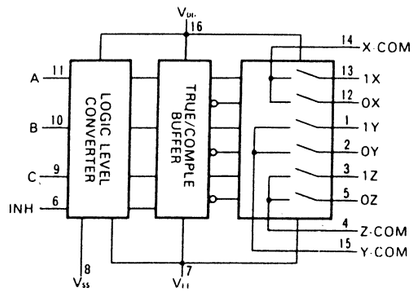
• CXA1372 Q (Focus/Tracking Servo)

Pin No.	Pin Name	Function
2	FGD	To decrease highband gain, insert a capacitor between this terminal and pin 3.
3	FS3	Switches the highband gain of focus servo by turning ON/OFF FS3.
4	FLB	This external time-constant terminal is to increase focus servo in lowband.
5	FEO	Focus drive output
6	FE ⊖	Reversed input terminal of focus amplifier
7	SRCH	This external time-constant terminal is to create focus search waveform.
8	TGU	This external time-constant terminal is to switch tracking highband gain.
9	TG2	This external time-constant terminal is to switch tracking highband gain.
11	TAO	Tracking drive output
12	TA ⊖	Reversed input terminal of tracking amplifier
13	SL ⊕	Non-reversed input terminal of thread amplifier
14	SLO	Thread drive output
15	SL ⊖	Reversed input terminal of thread amplifier
16	FSET	This terminal is to set the peak of phase compensation for focus tracking and f0 of CLV LPF.
17	ISET	Conducts a current to determine the peaks of focus search, tracking jump and thread kick.
18	SSTOP	This terminal detects ON/OFF of the limit SW to detect the innermost envelope of disk.

Pin No.	Pin Name	Function
20	DIRC	Used upon jumping 1 track. It contains a 47 kΩ pull-up resistance.
21	LOCK	Thread run-out protective circuit is actuated at "L". It contains a 47 kΩ pull-up resistance.
22	CLK	Serial data transfer clock input from CPU
23	XLT	Latch input from CPU
24	DATA	Serial data input from CPU
25	XRST	It is reset when reset input terminal is "L".
26	C.OUT	Signal output for counting the number of tracks
27	SENS	Issues outputs, e.g. FZC, AS, TZC, SSTOP and $\overline{BUSY}$ according to the command from CPU.
29	MIRR	Mirror signal output terminal
30	DFCT	Defect signal input terminal. The defect protection circuit is activated upon "H".
32	EFM	Output terminal of EFM comparator
33	FOK	FOK signal input terminal
38	CP	Non-reversed input terminal of MIRR comparator
39	RFI	Input terminal of RF summing amplifier
42	TZC	Input terminal of tracking zero cross comparator
43	TE	Tracking error signal input terminal
45	ATSC	Window comparator input terminal to detect ATSC
46	FZC	Input terminal of focus zero cross comparator
47	FE	Focus error signal input terminal

MC-X7/X7L
<Compact Disc Player Section>

• TC4053BP (3-Circuit 2-Channel Multiplexer)

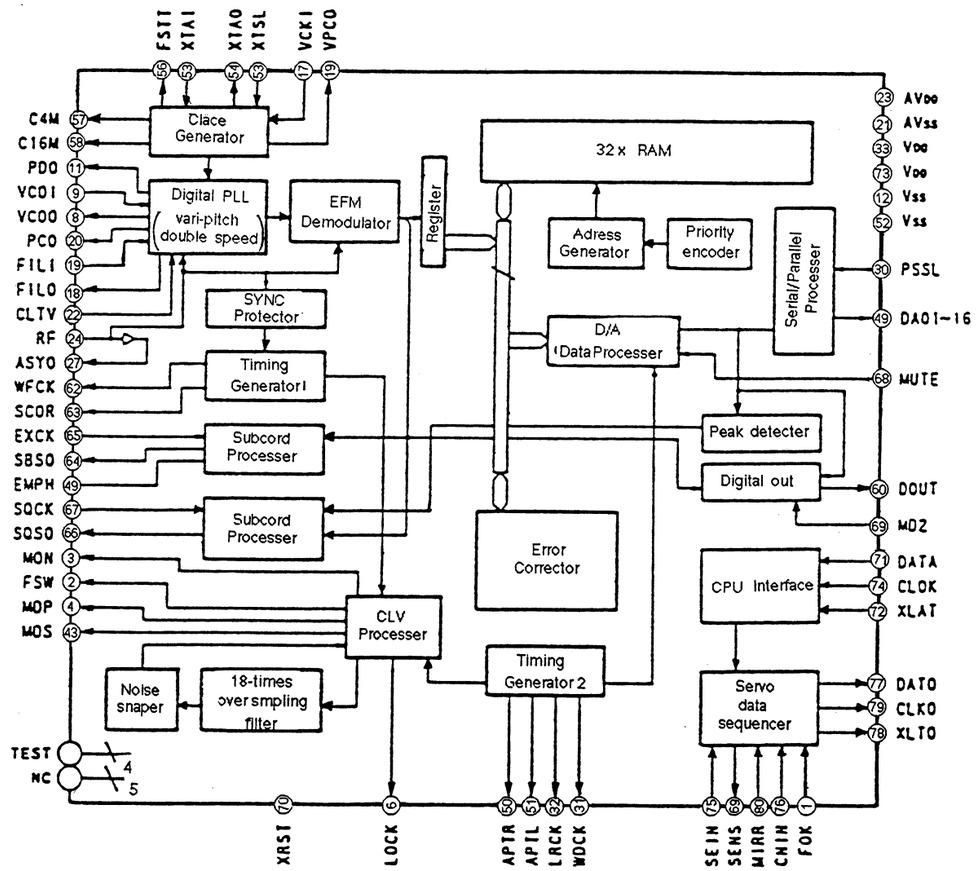


♦ Truth Table <TC4053>

CONTROL INPUT				"ON" CHANNEL
INHIBIT	C	B	A	
L	L	L	L	0X, 0Y, 0Z
L	L	L	H	1X, 0Y, 0Z
L	L	H	L	0X, 1Y, 0Z
L	L	H	H	1X, 1Y, 0Z
L	H	L	L	0X, 0Y, 1Z
L	H	L	H	1X, 0Y, 1Z
L	H	H	L	0X, 1Y, 1Z
L	H	H	H	1X, 1Y, 1Z
H	×	×	×	NONE

× = Don't Care

• CXD2500Q (Digital Signal Processing)

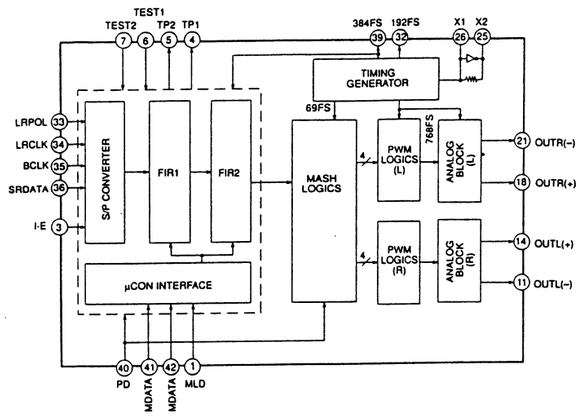

FSTT XTAI XTAO XTSL VCKI VPCO
C4M C16M PDO VCOI VCOO PCO FILI FILO CLTV RF ASYO WFCK SCOR EXCK SBSO EMPH SQCK SQSO MON FSW MDP MDS
TEST NC
XRST LOCK APTR APTL LRCK WDCK SEIN SENS MIRR CNIN FOK
AVDD AVSS VDD VDD VSS VSS PSSL DA01-16 MUTE DOUT MD2 DATA CLOK XLAT DATO CLKO XLTO
Clace Generator
Digital PLL vari-pitch double speed
EFM Demodulator
Register
SYNC Protector
Timing Generator1
Subcord Processer
Subcord Processer
CLV Processer
Noise snaper
18-times over smpling filter
32 x RAM
Adress Generator
Priority encoder
D/A Data Processer
Serial/Parallel Processer
Peak detecter
Digital out
Error Corrector
CPU Interface
Timing Generator 2
Servo data sequencer

♦ Terminal Function <CXD2500Q>

Pin No.	Pin Name	I/O	Function
1	FOK	I	Focus OK input terminal
2	FSW	O	Time-constant switching output for the output filter of spindle motor
3	MON	O	ON/OFF control output of spindle motor
4	MDP	O	Drive output of spindle motor. Rough control in CLV.S mode and phase control in CLV.P mode
5	MDS	O	Drive output of spindle motor Speed control in CLV.P mode
6	LOCK	O	This pin samples GFS signal by WFCK/16 and, if "H", issues "H". If "L" occurs consecutively 8 cycles, "L" is output.
8	VCOO	O	VCO output. When it is locked at EFM signal, f = 8.6436 MHz.
9	VCOI	I	VCO input
10	TEST	I	(0V)
11	PDO	O	Charge pump output for pulling up analog EFM signal
16	VPCO	O	PLL charge pump output for variable pitch
17	VCKI	O	Clock input for variable pitch. f = 19.0934MHz
18	FILO	O	Filter output for master PLL
19	FILI	I	Filter input for master PLL
20	PCO	O	Charge pump output for master PLL
22	CLTV	I	VCO control voltage output for master PLL
24	RF	I	EFM signal input from EF amplifier
27	ASYO	O	Full swing output of EFM signal
30	PSSL	I	Audio data output mode switching output. Serial output at "L". Parallel output at "H".
31	WDCK	O	Strobe signal output. 176.4 kHz when DF is ON. 88.2 kHz when CXD1125Q or DF is OFF.
32	LRCK	O	Strobe signal output. 88.2 kHz when DF is ON. 44.1 kHz when CXD1125Q or DF is OFF.
33	VDD	—	Power supply (+5 V)
34	DA16	O	DA16 (MSB of parallel voice data) is output when PSSL = "H". DATA is output when PSSL = "L".
35	DA15	O	DA15 is output when PSSL = "H". Bit clock of 48 bits is output when PSSL = "L".
36	DA14	O	DA14 is output when PSSL = "H". Serial data is output when PSSL = "L".
37	DA13	O	DA13 is output when PSSL = "H". Bit clock of 64 bits is output when PSSL = "L".
38	DA12	O	DA12 is output when PSSL = "H". LR clock of 64 bits is output when PSSL = "L".
39	DA11	O	DA11 is output when PSSL = "H". GTOP is output when PSSL = "L".
40	DA10	O	DA10 is output when PSSL = "H". XUGF is output when PSSL = "L".
41	DA09	O	DA09 is output when PSSL = "H". XPLCK is output when PSSL = "L".
42	DA08	O	DA08 is output when PSSL = "H". GFS is output when PSSL = "L".
43	DA07	O	DA07 is output when PSSL = "H". RFCK is output when PSSL = "L".
44	DA06	O	DA06 is output when PSSL = "H". C2PO is output when PSSL = "L".
45	DA05	O	DA05 is output when PSSL = "H". XRAOF is output when PSSL = "L".
46	DA04	O	DA04 is output when PSSL = "H". MNT3 is output when PSSL = "L".
47	DA03	O	DA03 is output when PSSL = "H". MNT2 is output when PSSL = "L".
48	DA02	O	DA02 is output when PSSL = "H". MNT1 is output when PSSL = "L".
49	DA01	O	DA01 (LSB of parallel voice data) is output when PSSL = "H". MNT0 is output when PSSL = "L".
50	APTR	O	Control output for aperture compensation. "H" for R-ch.
51	APTL	O	Control output for aperture compensation. "H" for L-ch.
52	Vss	—	GND (0V)
53	XTAI	I	X'tal oscillator output. f = 16.9433 or 33.8688 MHz by selecting the mode.
54	XTAO	O	X'tal oscillator output. f = 16.9344 MHz by selecting the mode.
55	XTSL	I	16.9344 MHz at L. 33.8688 MHz at H.
56	FSTT	I	2/3 frequency divided output of pins 53 and 54
57	C4M	O	Frequency divided output of X'tal. f = 4.2336 MHz. It changes at the same time as varying the pitch.
58	C16M	O	16.9344 MHz output. Simultaneously changes when varying the pitch.
59	MD2	I	ON/OFF control of digital output. ON and OFF at H and L, respectively.
60	DOUT	O	Digital output
61	EMPH	O	Issues H or L when replaying disk is with or without emphasis, respectively.
62	WFCK	O	WFCK (write frame clock) output
63	SCOR	O	Subcode sync S0 + S1
64	SBSO	O	Serial output of subcode
65	EXCK	I	Clock input for serial output of subcode
67	SQCK	I/O	Clock to read subcode Q
68	MUTG	I	Muting input. MUTG is "T" normal state or no sound state when ATTM of the internal register is "L" or "H", respectively.
69	SENS	O	Issues the output of internal state according to the address.
70	XRST	I	System reset input. To be reset at "L".
71	DATA	I	Serial data input from CPU
72	XLAT	I	Latch input from CPU. Data (serial data from CPU) is latched to each register at the fall of the signal.
73	VDD	—	Power supply (+5 V)
74	CLOK	I	Serial data transfer clock input from CPU. It latches data at the rise of locking signal.
75	SEIN	I	Sense input from SSP.
76	CNIN	I	Tracking pulse input
77	DATO	O	Serial data output to SSP
78	XLTO	O	Serial data latch output to SSP
79	CLKO	O	Serial data transfer clock output to SSP
80	MIRR	I	Mirror signal input

MC-X7/X7L
<Compact Disc Player Section>

• MN6471M/6474M (D/A Converter)



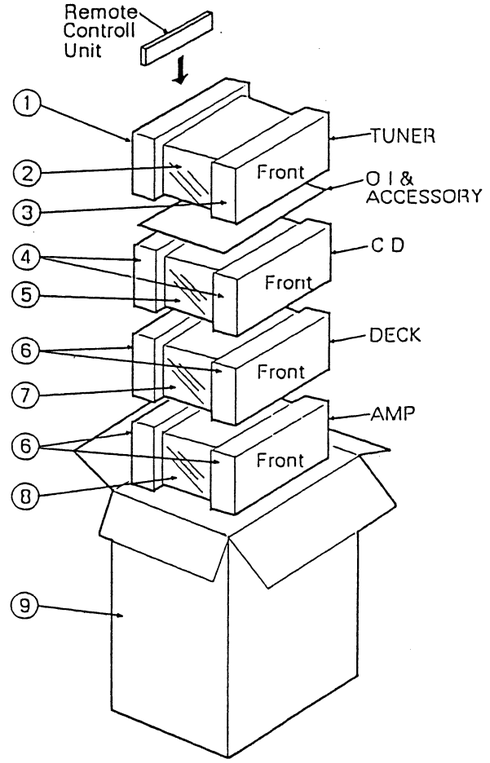
<Function> (MN6471M/6474M)

Pin No.	Pin Name	Function
1	MLD	Microcomputer command load input (load when at Ⓛ)
2	RSTB	Reset terminal (active when at Ⓛ)
3	IE	When at Ⓛ — Signal processor LSI format When at Ⓗ — I²S format
10	$AV_{DD}4$	Analog system power source terminal 4 (+5 V)
11	OUTL (–)	Left channel antiphase PWM output terminal
12	$AV_{SS}4$	Analog system ground terminal 4
13	$AV_{SS}3$	Analog system ground terminal 3
14	OUTL (+)	Left channel normal phase PWM output terminal
15	$AV_{DD}3$	Analog system power source terminal 3 (+5 V)
17	$AV_{DD}2$	Analog system power source terminal 2 (+5 V)
18	OUTR (+)	Right channel antiphase PWM output terminal
19	$AV_{SS}2$	Analog system ground terminal 2
20	$AV_{SS}1$	Analog system ground terminal 1
21	OUTR (–)	Right channel normal phase PWM output terminal
22	$AV_{DD}1$	Analog system power source terminal 1 (+5 V)
23	$DV_{DD}1$	Digital system power source terminal 1 (+5 V)
24	$DV_{SS}1$	Digital system ground terminal 1
25	X2	X'tal oscillation terminal
26	X1	X'tal oscillation terminal
28	$DV_{DD}2$	Digital system power source terminal 2 (+5 V)
29	$DV_{SS}2$	Digital system ground terminal 2
30	NSUB	Connected to D-V_{DD} (silicone PCB potential stabilizer terminal)
32	192FS	192 FS (≈8.4672 MHz) output terminal
33	LRPOL	Left/right channel switching terminal (Ⓗ is left channel, Ⓛ is right channel)
34	LRCLK	LRCLK input terminal LR-POL when at Ⓗ: Ⓗ is left channel data input, Ⓛ is right channel data input LR-POL when at Ⓛ: Ⓛ is right channel data input, Ⓗ is left channel data input
35	BCLK	Serial input bit clock
36	SRDATA	Serial input data (digital) input terminal
37	$DV_{SS}3$	Digital system ground terminal 3
38	DV_{DD}	Digital system power source terminal (COM potential stabilizer terminal)
39	384FS	384 FS (16.9344 MHz) output terminal
40	PD	Power down terminal (Ⓛ is active)
41	MDATA	Microcomputer command data input terminal
42	MCLK	Microcomputer command clock input terminal

• CXP50116-304Q (System Control)

Pin No.	Pin Name	I/O	Function	Active
29	SCOR	I	Subcode sync input	L
31	TEX		Connected to GND.	
32	$\overline{RST}$	I	Power ON reset	L
33	NC		Connected to V_{DD}	
34	V_{DD}		V_{DD}	
35 36 37 38 39 40	AD0 AD1 AD2 AD3 AD4 AD5	ADI ADI ADI ADI ADI ADI	Tact input terminal	H
41	TEST	ADI	Test port normally fixed at H.	
42	FL DUTY	ADI	FL duty adjusting port normally fixed at L.	
43	$\overline{EC}$	I	Event counter input terminal connected to V_{DD}.	
44	SOCK/CLK	I	SQSO read-out clock output/serial data transfer clock output	L
45	DATA	O	Serial data output	L
46	SQSO	I	Sub Q 80 bits, PCM peak and level data 16 bits input.	
47	CLOSE SW	I	Tray close SW input	L
48	OPEN SW	I	Tray open SW input	L
49	CLOSE	O	Motor close output	H
50	OPEN	O	Motor open output	H
51	$\overline{LDON}$	O	Laser ON output	L
52	D SEND	O	Issues H output for displaying.	H
53	XRST	O	Reset output terminal	L
54	MUTE	O	MUTE and reset at H and L, respectively	H
55	GFS	I	GFS input	
56	FOK	I	Focus OK signal input terminal	
57	SENS	I	FZC, AS, TZC and SSTOP output	
58	D.REQ	I	Display data request input	L
59	XLAT	O	Latch output	L
61	HDLD	I	Connected to standby reset wakeup input V_{DD}	L
62	SSB IN	I	SSB input	L
63	SSB OUT	O	SSB output	H
65	D.BUSY	O	Output upon transmitting display data	L
67	MLD	O	Load output for controlling MASH level	L
68	MCLK	O	Clock output for controlling MASH level	L
69	MDATA	O	Data output for controlling MASH level	L
70	ANA.SW	O	Output signal bus line ON, OFF output	H
71	Vss		GND	
72	XTAL		Output from clock generator circuit	
73	NC		Connected to V_{DD}	
74	EXTAL		Input to clock generator circuit	
75	Vref		Connected to V_{DD}	

11. PACKING AND ACCESSORY LIST



PACKING LIST

Parts No.	Stock No.	Description
1	27903400	Styrofoam Packing <Rear> (TU)
2	27867300	Vinyl BAG (TUNER)
3	27903300	Styrofoam Packing <Front> (TU)
4	27903500	Styrofoam Packing <Pair> (CD)
5	27867400	Vinyl BAG (CD)
6	27903200	Styrofoam Packing <Pair> (DECK, AMP)
7	27594000	Vinyl BAG (DECK)
8	27343800	Vinyl BAG (AMP)
9	05016400	Carton Case (MC-X7)
	05049700	Carton Case (MC-X7L)

ACCESSORY LIST

Parts No.	Stock No.	Description
	83271700	Remote Controller RS-F14
	49631200	AM Loop Antenna
	49335000	Antenna Connector (EU)
	49592410	17P FG Connector Cable (E)
	49592510	15P FG Connector Cable (F)
	46051700	FM Antenna
	19067300	Operating Instruction (E, F, S)
	19067400	Operating Instruction (H, G, I, Sw)
	————	Dry Battery (SUM-3)
	07563000	Antenna Holder

*** Note:**
E·F·S: English·French and Spanish Version
H·G·I·Sw: Hollands·German and Swedish Version

SANSUI

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